PRINCE EDWARD ISLAND

ENERGY CORPORATION

ANNUAL REPORT

1984-85

BOARD OF DIRECTORS

Mr. Norman F. Stewart, Chairman
Mr. Don J. Gillis, Vice Chairman
Mr. G. Douglas Dennis, Secretary-Treasurer
Hon. J. Angus MacLean, P.C.
Mr. L. Raymond MacKinnon
Mr. Leo J. Walsh
Hon. Frederick L. Driscoll

The Honourable Frederick L. Driscoll
Minister, Department of Energy & Forestry
P.O. Box 2000
Charlottetown, P.E.I.
C1A 7N8

Dear Mr. Minister:

I have the honour to present to you the attached annual report of the Prince Edward Island Energy Corporation for the year ending March 31, 1985. This report has been prepared and is submitted in accordance with the Energy Corporation Act, Section 10 (1).

Respectfully submitted,

Norman F. Stewart
Chairman of the Board of Directors

1.0 INTRODUCTION

This is the sixth annual report of the P.E.I. Energy Corporation. The Energy Corporation was established by the Energy Corporation Act which was proclaimed on December 9, 1978.

The objectives of the Energy Corporation are to develop and promote energy systems on an economic and efficient basis and to coordinate all government programs in the establishment and application of energy systems in the province.

The Corporation operates within the general framework of provincial energy policy which is the responsibility of the Minister of Energy & Forestry.

2.0 BOARD OF DIRECTORS

The members of the Board of Directors and their terms of office as of 31 March, 1985 are as follows:

Norman F. Stewart, Chairman — 20 October, 1983 — 20 March, 1987
Don J. Gillis, Vice Chairman — 26 March, 1981 — 6 December, 1987
G. Douglas Dennis, Secretary-Treasurer — 9 November, 1981 — 6 December, 1987
Hon. J. Angus MacLean, P.C., 21 November, 1983 — 21 November, 1986
L. Raymond MacKinnon, 20 October, 1983 — 20 October, 1986
Leo J. Walsh, 20 October, 1983 — 20 October, 1986
Hon. Frederick L. Driscoll (Ex Officio) 28 October, 1982

3.0 STAFF

The staff of the Energy Corporation consists of three full time positions, unchanged from last year. The policy of the Corporation is to contract services from the private sector rather than to increase staff.

4.0 ACTIVITIES

The signing of the Energy Sub-Agreement of E.R.D.A. in June, 1984 indicated the intent of the federal and provincial governments to facilitate the conversion of institutional, industrial and commercial buildings to wood fuel. The $10 million agreement will run until 1989 with $6.6 million being allocated to assisting with conversion costs. As part of the provincial contribution to the agreement the Energy Corporation was allocated $625,000 for the feasibility study and design of a district heating system for Charlottetown. In 1984-85 the Corporation commenced construction of a wood fuelled system at the Prince Edward Home and initiated major studies on district heating, a wood fuelled installation at the University of Prince Edward Island, and a turnkey congeneration installation at Cavendish Farms.

In addition to these major initiatives the Corporation pursued a number of smaller projects demonstrating practical renewable energy technologies. Additional details on these activities and projects follow.

4.1 Energy from Waste Plant

The Energy from Waste Plant continued to perform well during its second full year of operation. The reliability of the plant was such that no municipal waste had to be diverted to landfill, thus fulfilling one of the project's objectives, that of reducing the pressure on existing landfill sites. A total of 33.8 million kilograms of steam were delivered to the Queen Elizabeth Hospital complex replacing 3.8 million litres of fuel oil. A total of 23,240 metric tons of municipal refuse were delivered to the plant during the year. Only one significant mechanical problem arose during the year. This was corrected by the boiler manufacturer at his expense.

Environment Canada contacted the Corporation in June to request the Corporation's cooperation in carrying out a comprehensive evaluation of the atmospheric emissions from the Energy from Waste Plant. The Corporation agreed to participate on a no-cost basis and the test program, which is part of the National Incinerator Testing and Evaluation Program (NITEP), was carried out during the period 8 November — 9 December, 1984. The work proceeded smoothly and although no data on emission rates were calculated during the field work it appeared that the unit was operating as designed. Full results are expected to be released in mid-1985.

The cost of electricity continues to be a major component of the plant's operating costs. During the last fiscal year electricity costs were $155,000, making up 22% of the plant's operating cost. During the year a number of congeneration systems were studied that would pass the plant's steam through a back-pressure turbine before putting it through the interconnecting steamline between the plant and the hospital complex. The most promising concept appears to be a turbine producing about 100 kW which would supply the majority of the power needs of the plant. During February, contact was made with Energy, Mines & Resources Canada which indicated that the project might be eligible for assistance under their Enerdemo Program.

4.2 Cavendish Farms — Co-generation

In April preliminary proposals were received from Gotaverken and KMW Inc., two companies interested in proposing on a wood-fuelled congeneration system at Cavendish Farms. The project would provide a significant contribution to the provincial goal of replacing imported oil with an indigenous fuel. The Corporation cost shared the funding of two competing detailed design studies for a turnkey congeneration facility to provide steam and electricity to the New Annan Plant. The Corporation also carried out soils analyses at the site to determine the suitability of the location. Because of the significant wood fuel demand, a turnkey proposal was required to include a wood supply system to supply the project.

KMW Inc. and Gotaverken are Swedish Companies that have Canadian subsidiaries. Both companies made presentations to the Corporation in November, 1984. Gotaverken proposed a system that would use 83,000 tonnes/year of wood fuel and have a capital cost of $17.4 million. KMW proposed a system that would use 96,000 tonnes of wood fuel annually and cost $11.2 million. A review of the harvesting systems proposed was carried out by the Department of Energy & Forestry, and a review of the plant and congeneration

design was carried out by Power Engineering Ltd. During this period Maritime Electric Co. Ltd. proposed a transmission voltage rate whereby Cavendish Farms' cost of power could be reduced by 11% at a modest investment cost. Due to the high capital costs of the wood-fuelled system and the fact that the province is negotiating further electrical cost reductions, the project is being reconsidered by the parties involved.

4.3 Renewable Energy Initiatives Program

This program, which was initiated in 1982, was extended to the fiscal year 1984-85. The program funds demonstration projects using renewable energy or conservation technologies that have not been proven in P.E.I. Normal assistance is one-third of installed capital costs although technology transfer and monitoring costs are fully funded. Projects which received assistance under this program included:

— Groundwater Heat Pump — W. Blair MacDonald
— Prefabricated Wood Boiler — La Coopérative Forestière
— Wood Fired Tobacco Curing Facility — Phillip Curley
— Jet Ice Project — Sherwood Sportsplex
— Bunbury-Southport Wind Turbine — Bunbury-Southport Pollution Control Commission

In addition to the projects above, the Renewable Energy Initiatives program funded the salaries of an Engineer and Technician to carry out a comprehensive program of energy conservation activities in government buildings in cooperation with the Department of Transportation and Public Works.

4.4 Bunbury-Southport Wind Turbine Project

In the spring of 1983 the Energy Corporation was approached by the Bunbury-Southport Pollution Control Commission regarding the possiblity of a wind turbine demonstration project at the Commission's sewage lagoon in Bunbury. A 25 kW Enertech was selected and put into operation on March 7, 1984. A formal agreement was entered into between the Commission and the Energy Corporation with the Corporation owning the turbine and the Commission purchasing the power produced by the turbine. Excess power is sold to Maritime Electric Co. Ltd. After two years of operation, the turbine will be sold to the Commission. The turbine has suffered a number of generator failures during the winter which are being investigated.

4.5 Montague Junior High School — Wood-Fuelled Heating System

A Northfab wood chip boiler system was installed at the Junior High School in Montague and was started up in December, 1983. A replacement feed auger was installed in March 1984 to overcome feeding problems with the original auger. During the 1984-85 heating season a total of 98 tons of wood chip fuel was burned. The agreement between the Corporation and the Unit 4 School Board was extended for one year and the purchase of the equipment by the Board is expected to be made in June, 1986.

4.6 Wood Chipper Rental Program

The Corporation owns two small wood chippers that have been rented to homeowners and businesses that have small chip burning units.

During 1984-85 it was decided to purchase a replacement for the Bruks tractor-driven chipper which had seen hard use over a number of years. After calling tenders, a similar unit from Bruks was purchased. This unit had a hydraulic feeding mechanism which made the unit easier to operate. As in the previous year a contract was set up between Mr. Wanson Hemphill and the Corporation to maintain the chippers and rent them to individuals on a cost recovery basis.

4.7 Wood Fuel Use Survey

In the past the Corporation has funded a bi-annual survey to determine the volume of wood fuel used in the Province. These statistics are not currently compiled and are important additions to the provincial energy data base. The Study determined that 119,000 cords of wood were used in 61% of Prince Edward Island households over the 1983-84 heating season.

4.8 Vehicle Emission Test Program

In 1983-84 the Corporation funded the first phase of a program designed to assist motorists in improving the efficiency of their vehicles by offering a free engine tuning service. Phase 2 of the project was carried out between April 30, 1984 and July 6, 1984. A total of 884 vehicles were tested during the ten-week program and the service was offered in ten communities and towns from Tignish to Souris. Service Station locations were selected by the Municipal or Town Council.

4.9 Special Projects

The Corporation was allocated $200,100 for projects relating to forestry operations on Crown Lands. Eighty-four people were employed carrying out stand reclamation work on sites at Iris, Kilmuir, Elm Road, Brudenell, New Harmony and Bear River. The Corporation acquired a quantity of low cost wood which was chipped and used for fuel. The project was managed by the Department of Energy and Forestry on behalf of the Corporation and funds were accounted for under the Provincial Financial Information System.

4.10 Comprehensive Audit Report — Auditor General's Office

This report was completed in April, 1984. The report contains a number of recommendations, the most significant of which is that the Corporation should, in addition to project planning, prepare a formal long range plan. The Board set up a Sub-Committee to formalize the long term strategy of the Corporation.

The overall conclusion of the Auditor General's review was that the Corporation was in the process of achieving its intended purpose and that the Energy from Waste Plant, the principal project of the Corporation, could be rated a success in terms of its defined objectives.

5.0 PROJECTS UNDER DEVELOPMENT

5.1 University of Prince Edward Island Wood-Fired Heating System

In March, 1984 a preliminary study was carried out for the Department of Transportation and Public Works by ADI Limited to determine the feasibility of a wood-fuelled heating plant serving the Atlantic Veterinary College and the University of Prince Edward Island. A Steering Committee was set up that included Mr. A.J. Hiscock of the Energy Corporation and Mr. J.C. Johnson, representing the Crown Building Corporation. The Energy Corporation funded a $12,500 design brief by ADI Limited that refined the wood-fuelled boiler concept and received the study in November 1984. An application was then made by the University of P.E.I. to Energy, Mines and Resources Canada requesting assistance under the Alternate Energy Development Agreement. A grant of $702,360 was awarded by Energy, Mines and Resources and the Provincial Government guaranteed the loan of $900,000 that the University required for the balance of the $1,700,000 project. The University requested that the Energy Corporation provide the services of Dr. John te Raa to act as Project Manager for the wood-fuelled boiler installation. The installation is expected to be in operation in February, 1986 and to use 12,000 tonnes of wood fuel annually.

5.2 Prince Edward Home

During 1983-84 the Energy Corporation examined the possibility that a wood-fuelled boiler located at the old P.E.I. Hospital could heat both this building and, by means of an underground steam or hot water line, the Provincial Administration Building. A design study was carried out by ADI Limited which recommended that a 2 MW wood-fuelled steam boiler be located in an extension to the existing boiler room. An insulated hot water line would run to the present boiler room of the Provincial Administration building. The complete system was estimated to cost $1.1 million and would use 3,750 tonnes of wood fuel annually. On 26 June, 1984 the Board of Directors of the Energy Corporation decided to proceed with the project. Capital assistance of 25% of the project costs was obtained from Energy, Mines & Resources Canada, under the Alternate Energy Development Agreement. In November a contract was awarded to Earl A. Redmond Inc. for the boiler building and fuel bin construction.

The mechancial tender was awarded to Rayner's Plumbing & Heating Ltd., of Summerside and the wood boiler was supplied by KMW Inc. The wood boiler is expected to be fired in early April and the heating interconnect line installed over the summer of 1985.

5.3 Morell High School

The Corporation has been involved, together with the Department of Transportation and Public Works, in exploring the viability of a wood-fired boiler for the new Morell High School.

5.4 Biogas Production — Cavendish Farms

The Corporation jointly sponsored a report with the Department of Community and Cultural Affairs on the feasibility of an anaerobic treatment plant that would augment the existing treatment facility at Cavendish Farms and produce biogas that could be used in an engine generator. The Corporation has assisted the Department of Community & Cultural Affairs in developing this project which is expected to proceed next year.

6.0 STUDIES IN PROGRESS

6.1 District Heating

As part of the provincial contribution to the Energy Sub-Agreement of E.R.D.A., an allocation of $625,000 was made to carry out a major study on the feasibility of installing a district heating system in the City of Charlottetown. Several federally funded studies had indicated that Charlottetown was one of the most suitable sites in the Maritimes for this type of centralized heating system. The Corporation had determined that if such a system was viable it would enable a significant replacement of light fuel oil with wood. A Steering Committee was struck to advise on consultant selection and provide input to the Study. Organizations that had a representative on the Committee included the following:

Maritime Electric Co. Ltd.
City of Charlottetown
Charlottetown Chamber of Commerce
Charlottetown Water Commission
Charlottetown Area Development Corporation

In September, 1984 the terms of reference for the Study were approved by the Steering Committee and advertisements placed in national newspapers soliciting proposals. The offer closed on 19 November and the Steering Committee reviewed the twelve proposals received. The Committee reduced the proposals to a short list of three, H.H. Angus, Monenco and AF Energikonsult. Following presentations by the three companies, the Committee recommended AF Energikonsult. This company, which is based in Stockholm, Sweden, had formed a consortium with CBCL Limited, of Halifax, and IEA Consulting Group Ltd., of Charlottetown to carry out Phase 1 of the feasibility study for $145,000. The Consultant started work in January 1985 with a report presentation due in April 1985. An interim report to the Corporation stated that cooperation from the business community in providing fuel data was excellent and that there appeared to be significant interest in the project.

6.2 Butanol Study

In April 1984 the Corporation funded $20,000 of a $70,000 Study by R.F. Webb Corporation on the feasibility of using waste agricultural products such as cheese whey to produce butyl alcohol. This alcohol could be used as a fuel additive. The balance of the study was funded by Agriculture Canada. The draft report is due in April, 1985.

6.3 Charlottetown Rural High School and Holland College Royalty Centre Conversion to Wood Fuel

A study was begun by CBCL Limited in March, 1985 on the feasibility of installing a wood-fired boiler at Holland College and supplying heat by means of a pipeline to the High School. This report is expected to be completed in May, 1985.

6.4 Wind Farm Study

In December, 1984 the Corporation agreed to fund 50% of a $37,000 study to determine the viability of an array of wind turbines. A major component of the project would be the monitoring of two sites suitable for such an array. The report is due in March, 1986.

June 13, 1985

AUDITORS' REPORT TO THE DIRECTORS

We have examined the balance sheet of Prince Edward Island Energy Corporation as at March 31, 1985 and the statements of revenues, expenditures and surplus — operating and capital for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the company as at March 31, 1985 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Coopers & Lybrand
Chartered Accountants

PRINCE EDWARD ISLAND ENERGY CORPORATION
BALANCE SHEET AS AT MARCH 31, 1985

ASSETS

	1985 $	1984 $
CURRENT ASSETS		
Cash	17,950	327,098
Term deposits	14,087	32,892
Accounts receivable	202,810	309,928
Holdback receivable	8,864	—
Accrued interest receivable	998	1,619
Prepaid expense	30,238	—
Project under development	407,598	—
	682,545	671,537
FIXED ASSETS — at cost (note 2)	10,079,441	10,174,840
	10,761,986	10,846,377

LIABILITIES

CURRENT LIABILITIES		
Bank Loan	370,000	—
Accounts payable and accrued liabilities	493,978	589,768
	863,978	589,768
DEFERRED REVENUE	88,643	—
LONG-TERM DEBT		
12% debenture payable interest only to 1993 with principal and interest payments commencing in 1993 to amortize the balance	5,500,000	5,500,000
	6,452,621	6,089,768
OPERATING	250,184	285,476
CAPITAL (note 3)	4,059,181	4,471,133
	4,309,365	4,756,609
	10,761,986	10,846,377

SIGNED ON BEHALF OF THE BOARD

Director

Director

PRINCE EDWARD ISLAND ENERGY CORPORATION
STATEMENT OF REVENUES AND EXPENDITURES
— OPERATING AND SURPLUS
FOR THE YEAR ENDED MARCH 31, 1985

	1985 $	1984 $
REVENUES		
Grants		
Province of Prince Edward Island (note 4)	628,669	751,192
Federal Departments	—	30,029
Kings County Memorial Hospital — steam sales	29,070	84,559
— equipment	—	73,800
Bunbury Southport Pollution Control Commission	2,470	—
Sale of wood	795	—
	661,004	939,580
EXPENDITURES		
Projects — (Schedule)	398,129	626,770
Administration		
Consulting	118,863	138,851
Office furniture	1,018	707
Directors' honorarium	22,395	8,290
Travel	17,391	12,354
Office supplies	987	368
Miscellaneous	1,677	2,538
Telephone	4,965	3,893
Wages and levies	125,298	121,014
Audit	3,900	4,200
Materials and supplies	1,673	1,565
	298,167	293,780
TOTAL EXPENDITURES	696,296	920,550
EXCESS REVENUES (EXPENDITURES) FOR THE YEAR	(35 292)	19,030
SURPLUS — BEGINNING OF YEAR	285,476	266,446
SURPLUS — END OF YEAR	250,184	285,476

PRINCE EDWARD ISLAND ENERGY CORPORATION
STATEMENT OF REVENUES AND EXPENDITURES
— CAPITAL AND SURPLUS
FOR THE YEAR ENDED MARCH 31, 1985

	1985 $	1984 $
REVENUES		
— Sale of steam and tippage fees	1,138,314	1,172,635
— Interest	22,018	13,629
— Sale of scrap metal	3,806	—
	1,164,138	1,186,264
EXPENDITURES		
— Energy waste plant operations		
Interest	668,803	643,958
Property taxes	70,350	65,870
Operations	733,914	610,216
Management	93,310	81,100
Fuel	3,902	31,104
Professional services and plant start up costs	—	10,231
Miscellaneous	5,811	—
	1,576,090	1,442,479
EXCESS EXPENDITURES FOR THE YEAR	411,952	256,215
SURPLUS — BEGINNING OF YEAR	4,471,133	4,727,348
SURPLUS — END OF YEAR	4,059,181	4,471,133

PRINCE EDWARD ISLAND ENERGY CORPORATION
NOTES TO FINANCIAL STATEMENTS
FOR THE YEAR ENDED MARCH 31, 1985

1. ACCOUNTING POLICIES

Fixed Assets

Minor fixed assets are recorded as a cumulative figure which is retired out of grants and revenues and expensed in the statement of revenues and expenditures during the period in which the transaction occurs.

Major fixed assets remaining the property of the Prince Edward Island Energy Corporation are transferred to the fixed asset account from projects under development when such projects are complete and all funds have been received.

The corporation has adopted the policy of depreciating the energy from waste plant in accordance with principal payments on long-term debt. Since the debt is not scheduled to be reduced until 1993 the depreciation of the energy from waste plant will not commence until that time.

2. FIXED ASSETS

	Cost			
	March 31 1984	Additions	Rebates	March 31 1985
	$	$	$	$
Waste burning plant	10,174,840	17,819	113,218	10,079,441
Furniture and fixtures	1,177	1,018	—	2,195
	10,176,017	18,837	113,218	10,081,636
Less: Retirements of grants	1,177	1,018	—	2,195
	10,174,840	17,819	113,218	10,079,441

3. CAPITAL SURPLUS

The corporation had adopted the policy of capitalizing those funds received in financial support of the Waste Burning Plant. The surplus will be amortized to income in accordance with the depreciation policy.

4. GRANTS

The corporation received $650,669 from the Province of Prince Edward Island by way of a grant. The corporation returned to the Province the $22,000 received on sale of steam from the Kings County Hospital and Montague Junior High School, leaving a net grant of $628,669.

PRINCE EDWARD ISLAND ENERGY CORPORATION
SCHEDULE OF PROJECT COSTS
FOR THE YEAR ENDED MARCH 31, 1985

	1985	1984
	$	$
Renewable energy initiatives	184,769	187,340
Charlottetown District Heating Phase I	128,226	—
Prince Edward Home	25,366	—
Montague hospital wood chip burning unit — operations	24,430	90,662
Wood chippers	12,949	—
Vehicle emission testing	7,759	4,945
Wood fuel use survey	6,500	1,480
Cavendish Farms — Congeneration	5,537	—
Montague Junior High School — wood chip burning unit	2,593	5,610
Montague Jr. High wood chip installation	—	160,725
Agricultural energy conservation	—	110,899
Kings County Hospital roof for chip storage bin	—	27,958
P.E.I. Hospital wood study	—	19,058
Ethanol plant	—	11,000
District wood chip study	—	7,093
	398,129	626,770

8. ACKNOWLEDGEMENT

The Corporation acknowledges with thanks the contributions made by individuals and organizations within the federal and provincial governments and the private sector which have contributed substantially to activities of the Corporation. Without these donated contributions of expertise, criticism and advice the Corporation's activities would have been seriously impaired.